

DOCUMENT RESUME

ED 387 639

CE 070 013

TITLE Computer Support Technician.
INSTITUTION Ohio State Univ., Columbus. Center on Education and Training for Employment.
SPONS AGENCY Ohio State Dept. of Education, Columbus. Div. of Vocational and Career Education.
PUB DATE 95
NOTE 66p.; In: Tech-Prep Competency Profiles within the Business/Computer Technologies; see CE 070 004.
PUB TYPE Guides - Classroom Use - Teaching Guides (For Teacher) (052)

EDRS PRICE MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS Accounting; Business Administration; Business Education; Competence; Competency Based Education; Computer Networks; *Computer Oriented Programs; *Computer System Design; Economics; Electronics; Employment Potential; High Schools; *Job Skills; Microcomputers; Office Automation; Office Occupations Education; Postsecondary Education; *Programming; Small Businesses; Teamwork; *Technical Occupations; *Tech Prep
IDENTIFIERS *Computer Technicians

ABSTRACT

This publication contains 18 subjects appropriate for use in a competency list for the occupation of computer support technician, 1 of 12 12 occupations within the business/computer technologies cluster. Each unit consists of a number of competencies; a list of competency builders is provided for each competency. Titles of the 18 units are as follows: employability skills; professionalism; teamwork; professional and ethical standards; economic and business principles; customer relations; problem analysis; project management; technical documentation; basic personal computer (PC) concepts; packaged PC applications; general accounting functions; operating systems; application programming and design; network operations; computer hardware design; microcomputer electronics; and small business management. (YLB)

* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *

ED 387 639

TECH PREP

"GET SERIOUS... ABOUT SUCCESS"

CE070013

Computer Support Technician

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION
CENTER (ERIC)

- ☐ This document has been reproduced as received from the person or organization originating it.
- ☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

PERMISSION TO REPRODUCE THIS MATERIAL
IN OTHER THAN PAPER COPY HAS BEEN
GRANTED BY

Chen

TO THE EDUCATIONAL RESOURCES
INFORMATION CENTER (ERIC)



CENTER ON EDUCATION
AND TRAINING FOR EMPLOYMENT
COLLEGE OF EDUCATION
THE OHIO STATE UNIVERSITY

Computer Support Technician

NOTE: Each TCP should respond to labor market demands in your area. Therefore, the following pages should be examined before being selected for use in TCP Part I (See "The TCP Process" Tab). For example, some units may not apply to your situation, nor might all the competencies within each unit be appropriate. Also, note that several units appear within each of the twelve occupations in this binder. Those "common" units should only appear once in the draft competency list for TCP Part I if you are compiling several occupations in a cluster format (See "TCP Matrix" Tab).

Units to Consider	Page
Employability Skills	CS-3
Professionalism	CS-8
Teamwork	CS-12
Professional and Ethical Standards	CS-14
Economic and Business Principles	CS-16
Customer Relations	CS-20
Problem Analysis	CS-21
Project Management	CS-22
Technical Documentation	CS-23
Basic Personal Computer Concepts	CS-24
Packaged PC Applications	CS-26
General Accounting Functions	CS-31
Operating Systems	CS-36
Application Programming and Design	CS-40
Network Operations	CS-45
Computer Hardware Design	CS-50
Microcomputer Electronics	CS-54
Small Business Management	CS-59

**DON'T FORGET TO INSERT
YOUR ACADEMIC COMPETENCIES HERE**

Communications Literacy, Mathematics Literacy, Science Literacy, and Technology Literacy have been removed so that you may insert your own academic lists here.

COMMUNICATIONS LITERACY

(e.g., Reading, Writing, Speaking, and Listening)

MATHEMATICS LITERACY

(e.g., Algebra, Geometry, Trigonometry, Calculus)

SCIENCE LITERACY

(e.g., Physical Science, Environmental Science, Agriscience, Biology, Chemistry, Physics, Anatomy & Physiology)

TECHNOLOGY LITERACY

(i.e., the impact of technology on humans and their home, work, and play environments)

Unit: Employability Skills**Competency: Develop a career plan****Competency Builders:**

Identify current interests and aptitudes

Identify common barriers to employment

Describe strategies to overcome employment barriers

Locate resources for finding employment

Research job trends

Identify career options

Identify advantages and disadvantages of career options (in addition to other than monetary)

Identify job requirements

Investigate education/training opportunities

Evaluate personal strengths and weaknesses

Competency: Prepare for employment

Competency Builders:

Identify traditional and non-traditional employment sources
 Identify present and future employment opportunities (by geographic location)
 Research job opportunities, including non-traditional careers
 Compare salary ranges and benefit packages
 Compile occupational profile
 Identify rights and responsibilities of equal employment opportunity laws
 Design resume and cover letter
 Target resume
 Secure references
 Investigate generic and specific employment tests (e.g., civil service exam; drug screening)
 Use follow-up techniques to enhance employment potential
 Demonstrate legible written communication skills using correct grammar, spelling, punctuation, and concise wording
 Describe methods for handling illegal questions on job application forms and during interviews
 Write letter of application
 Research prospective employer and services performed
 Explain critical importance of personal appearance, hygiene, and demeanor
 Interpret job description
 Demonstrate appropriate interview question and answer techniques
 Demonstrate methods for handling difficult interview questions
 Evaluate job offers
 Write letter of acceptance
 Write letter of declination
 Demonstrate good listening skills
 Ask for the job tactfully
 Participate in extracurricular activities (e.g., student government, community projects,)

Competency: Evaluate the importance of self-esteem as an employability skill

Competency Builders:

Identify factors that affect self-esteem
 Compare effects of low self-esteem and high self-esteem
 Identify strategies to promote positive self-esteem

Competency: Demonstrate job retention skills**Competency Builders:**

Identify employer expectations regarding job performance, work habits, attitudes, personal appearance, and hygiene
Exhibit appropriate work habits and attitude
Demonstrate ability to set priorities
Identify behaviors to establish successful working relationships
Identify alternatives for dealing with harassment, bias, and discrimination based on race, color, national origin, sex, religion, handicap, or age
Identify opportunities for advancement
List reasons for termination
List consequences of being absent frequently from job
List consequences of frequently arriving late for work
Demonstrate interpersonal relations skills (i.e., verbal and written)
Demonstrate negotiation skills
Demonstrate teamwork
Follow chain-of-command
Exhibit appropriate job dedication

Competency: Demonstrate knowledge of work ethic**Competency Builders:**

Define work ethic
Identify factors that influence work ethic
Differentiate law and ethics
Describe how personal values are reflected in work ethic
Describe how interactions in the workplace affect personal work ethic
Describe how life changes affect personal work ethic

Competency: Exhibit appropriate work ethic

Competency Builders:

- Use time-management techniques
- Avoid personal activity during work hours
- Attend work as scheduled
- Adhere to company and/or governmental policies, procedures, rules, and regulations
- Exercise confidentiality
- Demonstrate appropriate human relations skills
- Adhere to rules of conduct
- Accept constructive criticism
- Offer constructive criticism
- Take pride in work
- Resolve conflict
- Manage stress
- Avoid sexual connotations and harassment
- Adjust to changes in the workplace
- Demonstrate punctuality
- Assume responsibility for personal decisions and actions
- Take responsibility for assignments
- Follow chain-of-command

Competency: Apply decision-making techniques

Competency Builders:

- Identify decision to be made
- Identify ownership of decision to be made
- Identify possible alternatives and their consequences
- Make decisions based on facts, legality, ethics, goals, and/or culture
- Apply time factor(s)
- Present decision to be implemented
- Evaluate decision made
- Take responsibility for decision

Competency: Apply problem-solving techniques**Competency Builders:**

Identify problem
Select appropriate problem solving tools/techniques
Identify root problem cause(s)
Track root problem cause(s)
Identify possible solutions and their consequences (e.g., long term, short term, crisis)
Use resources to explore possible solutions to problem
Contrast advantages and disadvantages of each solution
Identify appropriate action
Evaluate results
Identify post-preventive action

Competency: Exhibit characteristics for job advancement**Competency Builders:**

Display positive attitude
Demonstrate knowledge of position
Perform quality work
Adapt to changing situations and technology
Demonstrate capability/responsibility for different positions
Identify characteristics of effective leaders
Identify opportunities for leadership in work place/community
Demonstrate initiative to affect change in workplace
Participate in continuing education/training program
Responds appropriately to criticism from employer, supervisor, or other employees
Exhibit awareness of corporate culture
Prepare for job setbacks
Exhibit continual growth based on performance evaluation
Set realistic goals

Unit: Professionalism

Competency: Project professional image

Competency Builders:

- Define professionalism
- Exhibit professional appearance
- Exhibit professional manners
- Project professional attitude
- Identify individuals' vital role in organization
- Exhibit proper etiquette in professionally-related situations

Competency: Achieve individual and professional goals

Competency Builders:

- Set flexible, realistic, and measurable goals
- Identify potential barriers to achieving goals
- Identify strategies for addressing barriers to goal achievement
- Breakdown long-term goals into short-term goals
- Prioritize goals
- Commit to goals
- Adjust goals
- Obtain support for goals
- Reward goal achievement

Competency: Manage personal finances

Competency Builders:

- Explain need for personal management records
- Balance checkbook
- Identify tax obligations
- Analyze how credit affects financial security
- Compare types and methods of investments
- Compare types and methods of borrowing
- Compare types and methods of insurance
- Compare types of retirement options/plans
- Identify discriminatory vs. non-discriminatory expenditures

Competency: Support community well-being**Competency Builders:**

Identify environmental, educational, and social issues
Participate in social and/or community activities

Competency: Achieve organizational goals**Competency Builders:**

Evaluate personal goals in relation to organizational goals
Monitor progress by evaluating feedback
List responsibilities in relation to organization goals
Accomplish assigned tasks
Exercise responsibility in relation to organizational goals
Set appropriate personal performance standards
Communicate goals with supervisor and peers
Demonstrate knowledge of products and services
Promote organizational image and mission

Competency: Demonstrate positive relations in the workplace**Competency Builders:**

Identify personality types of self and other
Identify various management styles
Support employer expectations
Support employer decisions
Accept constructive criticism
Give constructive feedback
Adapt to changes in workplace
List factors to consider before resigning
Write letter of resignation

Competency: Manage stressful situations

Competency Builders:

Accept stress as part of daily life
 Identify personal and professional factors contributing to stress
 Describe physical and emotional responses to stress
 Evaluate positive and negative effects of stress on productivity
 Identify strategies for reducing stress
 Implement strategies to manage stress
 Create strategies for developing and maintaining support systems

Competency: Analyze effects of family on work and work on family

Competency Builders:

Identify how family values, goals, and priorities are reflected in work place
 Identify responsibilities and rewards associated with paid and non-paid work
 Identify responsibilities and rewards associated with families
 Explain how family responsibilities can conflict with work
 Explain how work can conflict with family responsibilities
 Explain how work-related stress can affect families
 Explain how family-related stress can affect work
 Identify family support systems and resources
 Identify work-related support systems and resources
 Communicate with family regarding work

Competency: Apply lifelong learning skills

Competency Builders:

Define lifelong learning
 Identify factors that cause need for lifelong learning
 Analyze effects of change
 Identify reasons why goals change
 Describe importance of flexibility and adaptability
 Evaluate need for continuing education/training

Competency: Manage professional development**Competency Builders:**

Identify career opportunities

Modify career plan

Participate in continuing education/training opportunities

Document continuing education/training

Read profession-related manuals, technical journals, and periodicals

Attend meetings, workshops, seminars, conferences, and demonstrations

Participate in professional organizations

Build personal/professional mentor relationship

Build personal/professional support system

Build professional network

Strengthen communication skills

Strengthen leadership skills

Strengthen management skills

Unit: Teamwork

Competency: Demonstrate knowledge of teamwork

Competency Builders:

- Define empowerment
- Differentiate work groups and teams
- Identify conditions essential to teamwork (e.g., brainstorming)
- Explain influence of culture (e.g., corporate, community) on teamwork
- Identify appropriate situations for using teams
- Define team structures (e.g., cross functional, quality improvement, task force, quality circles)
- Identify team building concepts
- Describe characteristics and dynamics of teams
- Identify characteristics of effective team leaders and members
- Identify responsibilities of a valuable team member
- Identify methods of involving each member of a team
- Explain how individuals from various backgrounds contribute to work-related situations (e.g., technical training, cultural heritage)
- Explain the purpose of facilitators
- Define consensus
- Define reward/recognition system

Competency: Demonstrate teamwork

Competency Builders:

- Identify purpose of team and intended goal (include time frames)
- Structure team around purpose
- Define responsibilities of team members
- Contribute to efficiency and success of team
- Work toward individual and team milestones
- Analyze results of team project
- Facilitate a team meeting
- Assist team member(s) with problem
- Monitor time frame
- Stress continuous improvement
- Accept failure as part of learning

Competency: Use teamwork to solve problems

Competency Builders:

Identify appropriate situations for using teams
Use problem-solving process in a team setting
Identify quality management processes/techniques
Identify quality assurance processes/techniques
Prepare presentation

Competency: Conduct team meetings

Competency Builders:

Plan agenda
Schedule meeting and location
Invite appropriate personnel
Solicit outside speakers as needed
Assign someone to take minutes
Facilitate introductions
Invite questions and comments and group participation
Focus team on agenda items
Assign appropriate action, time frame and accountability to tasks
Monitor time
Close meeting on time
Publish minutes in timely manner
Set ground rules
Avoid placing individual agendas above the group's agenda

Unit: Professional and Ethical Standards**Competency: Explain professional responsibilities****Competency Builders:**

Explain the need for professional and ethical standards
Explain responsibility of the individual to apply ethical standards
Identify responsibility to client(s) or employer(s)
Explain employer's consequences of unprofessional and/or unethical employee behavior
Identify responsibility to self (e.g., professional appearance and limitations) and to profession
Explain importance of conflict resolution in the workplace

Competency: Describe self-managed employees**Competency Builders:**

Explain the need for organizing tasks
Explain management-by-objectives
Explain importance of planning, both long-term and short-term
Explain importance of evaluating progress
Explain importance of reporting progress
Explain time management
Explain the benefit of creative brainstorming and innovative thinking

Competency: Describe intellectual property**Competency Builders:**

Explain legal ownership of proprietary assets produced by the computing professional
Explain public policy
Explain rights of the originator
Explain rights of the public
Explain patent
Explain copyright
Explain licenses
Explain confidentiality

Competency: Apply professional and ethical standards

Competency Builders:

Identify computing industry's standards

Describe computing industry's code of ethics

Explain various ethics established by computing societies

Apply various ethics established by computing societies

Unit: Economic and Business Principles**Competency: Describe basic economic concepts****Competency Builders:**

Identify importance of economic resources
Explain concept of economic resources
Explain importance of economic resources
Explain concept of economic goods and services
Differentiate between economic goods and services
Differentiate between needs and wants
Explain concept of supply and demand
Explain concept of price
Explain how supply, demand, and price are related
Explain concept of private enterprise and business ownership
Explain concept of profit
Explain concept of risk
Explain concept of competition
Explain relationship among risk, competition, and profit

Competency: Conduct training**Competency Builders:**

Secure training resources, materials, and equipment
Assess training needs
Train employees
Evaluate progress
Provide appropriate feedback

Competency: Evaluate economic systems**Competency Builders:**

Compare types of economic systems
Research free enterprise system
Interpret relationship between government and business
Interpret relationship between labor and management

Competency: Illustrate basic economic principles

Competency Builders:

Illustrate global economic and world market applications

Illustrate economic cycles (e.g., unemployment, recession, inflation, budget deficits)

Illustrate economic activity's affect on business (e.g., financial, competitor indicators, industry)

Competency: Analyze cost and profit influences

Competency Builders:

Identify importance of maximizing quality

Identify importance of maximizing productivity

Contrast specialized training and cross training

Contrast labor and management

Contrast government and business

Competency: Illustrate economic indicators and trends

Competency Builders:

Define gross national product and gross domestic product

Interpret impact of interest rates

Interpret impact of government spending

Interpret impact of seasonal business cycles

Interpret impact of inflation, growth, recession, and unemployment

Interpret impact of national and world events

Interpret impact of the growth of international trade

Competency: Explain basic international trade concepts

Competency Builders:

Explain nature and importance of international trade

Contrast advantages and disadvantages of marketing in international trade

Explain balance of trade concepts

Describe impact of foreign investment

Competency: Explain basic business concepts

Competency Builders:

- Identify functions of business
- Explain role of management
- Explain role of labor
- Explain concept of service as a product
- Explain role of administration
- Explain role of operations
- Identify role of company objectives
- Identify importance of ethical business practices
- Identify types of ownership
- Identify components of a business plan

Competency: Summarize business principles

Competency Builders:

- Explain business organizations and functions
- Describe business reporting and information flow
- Map interface of departmental functions
- Identify communication channels (e.g., formal, informal)
- Explain total quality management (TQM) principles

Competency: Illustrate legal concepts

Competency Builders:

- Define legal terminology
- Explain business law concepts
- Interpret contracts and/or legal documents
- Explain relationship of laws and regulations to company contracts, policies, and procedures
- Explain laws relating to working conditions, wages and hours, civil rights, social security, disability, and unemployment insurance

Competency: Explain role of marketing**Competency Builders:**

Explain aspects of sound business image
Identify purposes of marketing
Identify functions of marketing
Describe effects of marketing
Explain product/service variety
Identify target markets
Define sales potential
Explain pricing strategies
Differentiate advertising campaigns
Explain advantages and disadvantages of advertising agencies
Describe sales incentive programs
Maintain marketing feedback and make appropriate changes
Identify types of marketing strategies and the advantage and disadvantage of each
(e.g. phone, mail, person)
Design monitor plan

Competency: Serve customers/clients**Competency Builders:**

Identify importance of customer
Identify customer services to provide
Relate to customers in timely fashion
Identify customer needs and wants
Gather complete and accurate information
Apply customer service concepts and terminology
Identify methods for addressing dissatisfied customers

Unit: Customer Relations

Competency: Demonstrate positive relations with customers

Competency Builders:

Identify importance of customers to business

Differentiate between customer needs and wants

Provide prompt and courteous service

Resolve customer inquiries and complaints and/or refer customer to appropriate person

Identify methods of addressing dissatisfied customers

Competency: Perform scheduling functions to meet customers needs

Competency Builders:

Create calendar/schedule

Maintain appointment calendars

Process requests for appointments

Verify appointments

Notify customer of changes in schedule

Manage scheduling conflicts

Unit: Problem Analysis**Competency: Appraise situations****Competency Builders:**

Identify concerns
Classify concerns
Set priorities
Identify resolution process
Plan resolution

Competency: Analyze potential problems**Competency Builders:**

Identify potential problems
Identify likely causes
Identify preventive actions
Identify contingent actions

Competency: Analyze actual problems**Competency Builders:**

Identify deviation
Identify problem and possible causes
Test for probable causes
Verify cause

Competency: Analyze decisions**Competency Builders:**

Identify objective(s)
Classify objective(s)
Identify alternatives
Evaluate alternatives
Assess risks
Make final choice

Unit: Project Management**Competency: Explain project management****Competency Builders:**

Identify project purpose/goal
Identify project objectives
Identify work breakdown structure (WBS)
Identify resource requirements

Competency: Plan projects**Competency Builders:**

Apply responsibility assignment matrix (RAM)
Apply Gantt or bar charts
Apply network diagrams
Apply critical path method (CPM)
Apply project education and review techniques
Apply software programs

Competency: Implement projects**Competency Builders:**

Monitor project
Control project
Modify project

Competency: Evaluate projects**Competency Builders:**

Analyze performance
Close-out project evaluation
Draw project management conclusions

Unit: Technical Documentation

Competency: Demonstrate proficiency in technical documentation

Competency Builders:

- Identify parameters
- Ask questions
- Interpret specifications or drawings
- Record process (e.g., flowchart, step-by-step)
- Record data
- Maintain test logs
- Compile cumulative reference/record

Competency: Demonstrate proficiency in technical report writing

Competency Builders:

- Use data books and cross reference/technical manuals
- Identify type of report needed
- Compile relevant data
- Design applicable charts and graphs
- Analyze data
- Draw conclusions
- Outline reports
- Write reports
- Present reports

Unit: Basic Personal Computer Concepts

Competency: Explain use of personal computers in business

Competency Builders:

Describe the impact of computer use on individuals and businesses

Identify basic applications of computers in business

Identify automated business systems and electronic media

Identify different types and sizes of computers

Define input, processor, output, and storage units

Identify how PCs integrate with other information technologies (e.g., scanners, mainframes)

Describe impact of computer use on individuals and business

Identify basic applications of computers in business

Competency: Describe personal computer operations

Competency Builders:

Explain how data is stored in main computer memory

Explain how a computer system executes program instruction

Explain electronic storage capacity

Explain electronic units of measure and how they represent data

Identify data storage techniques

Identify types of memory

Explain different types of input and output

Competency: Explain information processing

Competency Builders:

Define operating systems

Describe the difference between data files and program files

Demonstrate knowledge of system commands

Define software types and functions

Describe basic disk operation and care

List business applications of software package

List advantages and disadvantages of integrated and dedicated software

Competency: Demonstrate computer literacy**Competency Builders:**

Identify computer components

Identify parallel versus serial ports

Explain differences between conventional, expanded, and extended memory

Identify use of storage media

List commands that affect disk operation

Use disk operating system to format disks

Originate directories and subdirectories

Explain common configuration variables

Explain device driver concepts

Demonstrate commands that open, close, copy, delete, and rename files on disk

Keyboard document(s) using computer

Unit: Packaged PC Applications**Competency: Explain software applications****Competency Builders:**

Describe need for application software

Describe different types of software applications

Explain advantages and disadvantages of various software applications

List software sources

Explain copyright laws for software

Competency: Explain spreadsheet packages**Competency Builders:**

Define spreadsheet

Demonstrate knowledge of basic spreadsheet terminology

Define components of spreadsheets

Describe implementation of spreadsheet operations in business scope

Competency: Perform word processing functions**Competency Builders:**

Define word processing terminology
Explain functions of word processing software
Explain word processing applications
Use appropriate reference materials
Keyboard efficiently by touch
Use mouse
Initialize diskette
Prepare backup file
Maintain backup file
Update spelling dictionary and spell check
Perform document functions (e.g., locate, rename, delete, save, retrieve, copy)
Perform formatting functions (e.g., set margins and tabs, center, underline, bold, cut and paste)
Use edit features
Use sort features
Add page numbers to document
Add headers and footers
Print files, pages, screens and blocks of text
Verify accuracy of output
Create a document
Save a document to disk
Retrieve a document from disk
Edit an existing document
Describe word-wrap
Print a document
Create glossary file
Store boilerplate material
Compose documents at keyboard
Tabulate multiple columns
Prepare new documents from existing ones
Merge selected copy with new information
Prepare various types of table options
Index text
Format text
Integrate database, spreadsheet and graphic files
Convert documents from one system to another
Demonstrate use of computer thesaurus
Use multimedia techniques/resources

Competency: Use spreadsheet packages**Competency Builders:**

Use spell check
Execute an electronic spreadsheet
Enter data, formulas, and functions
Differentiate between labels and numbers
Compare absolute and relative addressing
Speculate using "what if..." questions
Sequence keystrokes in the creation of a macro
Create database within spreadsheet and perform data query functions
Move around in spreadsheet and correct errors
Format spreadsheet
Create graphs
Print graphs
Save previously saved files
Load previously saved files
Replicate cells using copy commands
Use electronic spreadsheet to complete business application
Use spreadsheet to plan financial strategies
Prepare spreadsheet
Use multimedia techniques/resources

Competency: Explain database packages**Competency Builders:**

Define database
Explain terms used in database systems
Describe common functions of database systems

Competency: Use database packages**Competency Builders:**

- Use database package to create, input, edit, and display fields and records
- Analyze structure of database files
- Perform calculations with a database file
- Alter structure of database file
- Sort records based on multiple fields
- Identify advanced database technology
- Use appropriate reference materials
- Create relational database
- Enter elements into database
- Proofread database
- Edit database
- Design report formats
- Apply database management system (DBMS) commands
- Print reports using data from multiple databases
- Use database files with other application software
- Verify accuracy of output (e.g., edit reports)
- Use multimedia techniques/resources

Competency: Explain function of shared environments**Competency Builders:**

- List purposes of a network environment
- Define electronic mail
- Identify advantages and disadvantages of electronic mail
- Describe impact of local and wide area networks on mail delivery

Competency: Use a shared environment**Competency Builders:**

- Compose electronic messages
- Send electronic messages using appropriate format
- List categories of electronic mail service
- Transmit document using electronic mail system
- Monitor electronic mail

Competency: Manage software packages**Competency Builders:**

Install software packages
Upgrade software packages
Document installation of software packages
Convert data files

Competency: Perform computer business graphics**Competency Builders:**

Define purpose and types of graphics
Use appropriate reference materials
Create graphics
Proofread graphics
Edit graphics
Save graphics
Retrieve graphics
Print graphics to various output devices
Verify accuracy of output
Use graphic functions to create files, input data, process data, and produce output
Use graphics files with other application software

Competency: Use graphic user interface (GUI) techniques**Competency Builders:**

Explain multi tasking environment
Setup data exchange between two different applications
Setup an object link between two different applications
Explain the use of dynamic link libraries

Unit: General Accounting Functions

Competency: Apply arithmetical accounting skills

Competency Builders:

- Compute cash discounts for various terms
- Compute trade discounts
- Compute extension, sales tax, and totals of sales slips
- Compute markups and markdowns
- Calculate rates of trade and cash discounts
- Calculate unit prices given quantity prices
- Calculate costs of portions of units
- Solve problems involving fractions, decimals, and percentages
- Solve commission problems
- Solve finance-charge problems
- Solve annual percentage rate problems

Competency: Apply accounting principles

Competency Builders:

- Define accounting terminology
- Define journals and ledgers
- Identify basic accounting principles
- Identify basic accounting applications
- Identify computer accounting applications
- Identify financial control procedures
- Explain increases and decreases in accounts
- Explain periodic reporting procedures
- Prepare income statement
- Prepare balance sheet columns
- Prepare cash flow statement
- Interpret balance sheets
- Interpret income statements
- Interpret cash-flow analysis statements

Competency: Perform manual accounting functions**Competency Builders:**

Explain use of record keeping in relation to business and economic applications

Use appropriate reference materials

Analyze transactions

Use "T" accounts to label increases, decreases, and balances

Record transactions

Process receivables

Monitor expense accounts

Process payables

Prepare budgets

Process purchases

Prepare comparative (actual vs. budget) income statement

Competency: Perform automated accounting functions**Competency Builders:**

Use appropriate reference materials

Operate equipment

Key data on numeric keyboard

Import or download data from computer records

Scan data from various media

Use integrated software package for simulation of accounting cycle

Set up chart of accounts for general ledger

Set up accounts payable and accounts receivable ledgers

Add accounts to general and subsidiary ledgers

Input account balances

Enter journal transactions

Process journal transaction

Prepare trial balance

Verify data and correct errors

Generate reports

Proofread accounting records and statements

Edit accounting records and statements

Save accounting records and statements

Retrieve accounting records and statements

Print accounting records and statements

Competency: Perform spreadsheet functions**Competency Builders:**

Explain computer spreadsheet analysis

Use appropriate reference materials

Operate equipment

Create or format spreadsheet

Enter formulas

Move cells and ranges

Enter data on spreadsheet

Import or download data to spreadsheet

Apply data sort, data query, data fill, and data distribution

Export spreadsheet files to word processing, graphics and database files

Import spreadsheet files to word processing, graphics and database files

Proofread spreadsheet data

Edit spreadsheet data

Verify accuracy of output

Save spreadsheet

Retrieve spreadsheet

Print spreadsheet

Use spreadsheet functions to create files, input data, process data, and produce output

Use spreadsheet files with other application software

Competency: Perform payroll functions**Competency Builders:**

Use appropriate reference materials
Collect payroll data
Process payroll
Comply with company policies and procedures
Comply with government and legal requirements
Maintain records and forms
Monitor personnel costs

Competency: Perform banking functions**Competency Builders:**

Use appropriate reference materials
Prepare checks, deposit slips, and withdrawal slips
Maintain checkbook
Balance checkbook
Maintain petty cash
Balance petty cash
Explain automated banking transactions
Prepare banking records
Maintain banking records

Competency: Process cost accounting information**Competency Builders:**

Define cost accounting, direct materials, direct labor and overhead
Define cost allocation methods
Identify source documents
Compute direct materials by job or process
Compute direct labor by job or process
Compute overhead rates to apply to jobs or processes
Compute cost of goods produced
Compute cost of goods sold
Journalize cost of goods produced and sold entries
Post cost of goods produced and sold entries
Compute cost of inventories
Prepare cost production reports
Prepare related records of job or process costs

Competency: Process end-of-fiscal-period information

Competency Builders:

Prepare worksheet

Prepare trial balance

Foot ledger accounts and compute balances

Prove equality of debits and credits

Locate errors

Record adjustments

Make appropriate extensions

Journalize basic adjusting, closing, and reversing entries

Post basic adjusting, closing, and reversing entries

Prepare basic income statement

Prepare basic balance sheet

Prepare basic cash flow statement

Unit: Operating Systems**Competency: Describe operating systems****Competency Builders:**

Describe microcomputer operating systems
Describe minicomputer operating systems
Describe mainframe operating systems
Describe network operating systems
Describe how commands handle tasks in operating systems
Describe various input/output systems
Describe the purpose of operating system utilities
Differentiate between a compiler and an interpreter
Describe the processing that occurs when an interpreter is used
Describe the processing that occurs when a compiler is used

Competency: Explain central processing unit (CPU) control**Competency Builders:**

Explain CPU processes
Explain CPU concurrency
Explain CPU scheduling
Explain CPU multitasking
Explain CPU multiprocessing

Competency: Describe memory management**Competency Builders:**

Describe functions of primary memory
Describe functions of virtual memory (e.g., paging, segmentation)
Describe functions of extended memory
Describe functions of expanded memory
Describe functions of cache memory

Competency: Explain auxiliary storage management**Competency Builders:**

Explain storage management software
Identify auxiliary storage media
Describe operational characteristics of storage media
Describe storage capacities of storage media
Describe retrieval methods of storage media
Differentiate between files and directories
Differentiate among management devices (e.g., disk, tape, CD-ROM)
Explain redundant array of inexpensive disks (RAID)
Explain mirroring concepts

Competency: Store media**Competency Builders:**

Identify need for data library
Use appropriate reference materials
Retrieve stored media
File stored media
Initialize media
Catalog media
Maintain supplies
Maintain media library
Maintain backup records
Maintain company and/or government standards for media security
Maintain archives of company records required by policy or law

Competency: Explain security issues**Competency Builders:**

Define backup and recovery
Explain disaster planing
Define authentication (e.g., passwords, access level)
Describe encryption techniques
Describe viruses and worms
Describe vaccines
Explain operating system penetration

Competency: Maintain security requirements**Competency Builders:**

Implement security procedures
Apply business ethics
Follow security rules, regulations, and codes
Document security procedures
Perform security checks

Competency: Define open system concepts**Competency Builders:**

Differentiate between proprietary and open system architecture
Explain X/OPEN
Explain purpose of Open Software Foundation
Explain purpose of UNIX International
Explain purpose of Corporation for Open Systems International
Identify the OSI Model

Competency: Operate system**Competency Builders:**

Review automated scheduling software
Define job, batch, and job step
Describe data requirements
Use appropriate reference materials
Perform power-up and log-on procedures
Demonstrate basic programming skills
Use console device to interact with and respond to system messages
Secure supplies and resources
Follow processing procedures for each application/job
Run application/job
Describe scheduling priority
Describe transmittal form and transmittal log
Develop an audit trail
Handle materials and equipment in a responsible manner

Competency: Maintain system**Competency Builders:**

Use appropriate reference materials
Monitor system status and performance
Run diagnostics
Respond to system messages
Report computer system malfunction(s)
Report software malfunction(s)
Fix recoverable problems
Maintain security
Maintain computer log
Perform backup procedure(s)
Perform preventative maintenance procedures
Change hardware
Install software packages
Restore system
Follow log-off and power-down procedure(s)

Competency: Administer system**Competency Builders:**

Manage complete system
Manage network
Manage operating system
Manage applications

Unit: Application Programming and Design

Competency: Explain computer applications

Competency Builders:

Explain hardware component functions
Explain uses of a computer
Describe major events in the development of computers
Describe major types of software and their functions
Read computer publications
Interpret computer trends
Describe batch processing
Describe interactive processing
Describe ad hoc reporting

Competency: Develop computer applications

Competency Builders:

Use appropriate reference materials
Analyze specifications
Divide design specifications into logical blocks (e.g. flowchart, data flow diagram, system flows record and layout)
Identify constraints
Identify programming language
Identify input and output (I/O) requirements
Prepare logic using program-flow diagram

Competency: Explain programming theory**Competency Builders:**

Explain the meaning of "reserved word"
Describe arrays and tables
Explain compilers
Differentiate between system documentation and user documentation
Describe what is meant by top-down design and structured programming
Identify the steps in the program development cycle
Design a decision table for a specified problem
Identify the steps and procedures required to develop test data
Explain the difference between recursion and iteration
Describe what is meant by data validation
Describe what is meant by "object oriented" programming

Competency: Apply programming theory**Competency Builders:**

Demonstrate use of working storage variables
Write source code per standards
Use spacing charts to plan program output
Code a modular program
Interpret a simple hierarchy chart
Interpret a simple pseudocode design
Create a flow-chart
Perform program sorts
Demonstrate use of loops
Demonstrate use of logical operators (e.g., AND, OR, NOT)
Code error-handling techniques
Demonstrate use of data files

Competency: Explain programming languages**Competency Builders:**

Outline history of programming languages
Identify primary use of programming languages and their weaknesses
List rules for naming variables

Competency: Use programming language**Competency Builders:**

- Perform character manipulation
- Declare variables
- Initialize variables
- Modify variables
- Demonstrate a function
- Demonstrate a library
- Demonstrate a subroutine
- Demonstrate system calls
- Apply conditional statements
- Evaluate series of logical expressions
- Code separate addition, subtraction, multiplication, and division statements
- Declare a one-dimensional array
- Initialize an array
- Generate executable code

Competency: Use operating system**Competency Builders:**

- Apply appropriate text editor
- Apply operating system commands
- Apply operating system utilities

Competency: Test programs**Competency Builders:**

- Explain debugging statements
- Perform debugging functions
- Debug compilation errors
- Create test data that checks logic and error routines
- Execute program with test data
- Correct execution errors
- Perform unit and integration test
- Analyze test results
- Define auto testing software

Competency: Apply programming skills**Competency Builders:**

Demonstrate knowledge of file and table processing
Develop program using data validation techniques
Develop interactive process
Develop menu-driven program
Develop database program
Develop program that utilizes a recursive process
Develop program using copy libraries
Develop program using system calls
Develop program using design tool

Competency: Develop documentation**Competency Builders:**

Prepare program documentation
Prepare user documentation
Prepare data-flow diagrams
Update design documentation

Competency: Demonstrate knowledge of the systems design process**Competency Builders:**

Identify processing requirements
Identify programming language
Use appropriate reference materials
Describe role of user and management in the development of a computer system
Describe use of data flow diagrams, system flowcharts and display screen layout forms
Conduct interviews
Design system inputs and outputs and processes
Create design documentation
Present system design

Competency: Evaluate system**Competency Builders:**

Identify evaluation criteria

Develop test plan

Analyze test data

Present results

Recommend corrective action, if appropriate

Explain iterative nature of system evaluation

Competency: Implement system**Competency Builders:**

Identify implementation plan

Identify conversion method

Train personnel

Present implementation plan

Unit: Network Operations

Competency: Explain communication standards

Competency Builders:

Identify the seven layers of the International Organization Standard's Open System Interconnection (OSI) Model

Describe each OSI layer, including their interconnectivity

Identify software standards for subnet, presentation layers, and file servers

Competency: Describe network structures

Competency Builders:

Differentiate topologies (e.g., hierarchical, ring, star)

Differentiate architecture(s)

Explain layering

Describe protocols (e.g., TCP/IP, IPX/SPX, etc..)

Describe frame types (e.g., SNA<802.3, 802.5)

Define local area network

Define different types of LANs

Differentiate between network operating systems and data distribution systems

Identify advantages and disadvantages of various LAN operating systems

List duties of LAN supervisor

Competency: Explain network transmission and media

Competency Builders:

Explain signals

Explain patterns

Explain error detection and correction

Explain speed of transmission

Explain use of media

Explain use of equipment

Explain role of network manager

Competency: Explain network connectivity and interoperability

Competency Builders:

Identify equipment connecting devices
 Differentiate between sync and async devices
 Identify software connecting devices
 Identify media connecting devices
 Identify type of interoperability (e.g., peer-to-peer, peer-to-host)
 Identify problems of mixed vendor network implementation
 Describe internetworking solutions
 Describe cabling schemes and alternatives
 Identify network topologies
 List pros and cons of network interface cards
 List pros and cons of network servers
 Explain why internetworking is useful or necessary
 Describe levels at which internetworking can occur
 Identify protocols used for remote interconnecting and when each should be used
 List common pitfalls when networking computers
 Identify method used to evaluate emulators
 Describe gateways (e.g., mainframe, protocol)

Competency: Describe network operating systems

Competency Builders:

Identify responsibilities of a network operating system
 Explain installation procedure for network operating systems
 Explain commands needed to use network operating systems
 List characteristics of a network interface card (NIC)
 Define criteria used to describe network servers
 Define criteria used to evaluate network operating systems

Competency: Describe potential networking problems with applications software

Competency Builders:

Describe potential hard disk compatibility problems
 Differentiate between site multi user and single user licenses
 Describe necessary precautions included in programs used on networks

Competency: Explain network management**Competency Builders:**

List steps in mapping a network

Explain why files must be organized according to owners, users, and privileges

Describe common standards for setting up and naming files

List criteria used to determine if a file should be network accessible

Identify methods to increase performance

Define hierarchical directory

Explain methods used to determine how many servers should be used

State reasons for channel and cable bottlenecks

Competency: Explain network security**Competency Builders:**

Explain need for data protection

Identify common backup devices

Explain criteria for selecting a tape system

Differentiate between hard and soft errors

Contrast streaming and file-by-file backup systems

Explain process for archiving files

Explain necessity for network security

Identify levels of network security and reasons for their existence

Competency: Explain installation procedures**Competency Builders:**

Explain why an installation log is necessary

Identify methods of distributing cable, including modeling examples

Identify problems associated with cable installation

Describe types of cable, cable connectors, and grounding techniques

Explain cable testing and tolerance levels

Identify sources of interference and include methods to overcome each

Competency: Use network knowledge**Competency Builders:**

Use electronic/voice/multi-media mail
Share files
Use dial-in access
Make backups
Share resources
Explain software control
Apply security and authentication

Competency: Apply network operations**Competency Builders:**

Assess user needs to determine which LAN operating systems to use
Demonstrate applications used on LANs
Describe how the network protocols work together
Operate the system in a multi-user environment
Demonstrate knowledge of various networks and compatibility
Differentiate among various topologies
Identify which network operating system to use
Build synchronous transmission circuit using a modem
Build synchronous transmission circuit using a modem
Connect PCs to form a network
Connect two PCs networks
Perform file to file copy in a PC network
Implement print queue in a PC network
Configure file server in a PC network
Connect PC to mini or mainframe
Link mixed vendors (e.g., PC to Mac)
Interconnect via backbone network
Build small ethernet or token ring network

Competency: Administer network**Competency Builders:**

- Use appropriate reference materials
- Apply current LAN concepts and technology
- Attach computers and peripherals to LAN
- Change computer hardware
- Set up system configuration
- Install LAN manager software
- Install software packages
- Respond to system messages
- Troubleshoot system
- Run software applications
- Back up and restore systems
- Perform system analysis
- Use security procedures
- Perform preventative maintenance
- Select access control and security
- Outline resource management
- Install cabling
- Install network
- Analyze network operations
- Check physical and virtual connections
- Modify network
- Apply standards
- Acquire licensing
- Plan disaster recovery
- Address protocols (e. g., ethernet, token ring, Arcnet)
- Monitor network activity/performance

Competency: Perform network maintenance and diagnostics**Competency Builders:**

- Execute network diagnostics program for software
- Execute network diagnostics program for hardware
- Apply standard and protocols
- Document action(s) taken

Unit: Computer Hardware Design

Competency: Explain standards

Competency Builders:

Identify OSI, IEEE, ISO, and CCITT standards
Identify standard setting bodies and their proclamations
Explain conformance and APIs

Competency: Describe computational site environment

Competency Builders:

Identify environmental requirements
Identify power requirements and power supplies
Identify ergonomic issues
Identify structural capacities
Identify local codes

Competency: Differentiate among architecture and processor types

Competency Builders:

Describe architecture and processors of microcomputers
Describe architecture and processors of minicomputers
Describe architecture and processors of mainframes
Explain instruction sets

Competency: Analyze computer systems architecture

Competency Builders:

Describe the principles and operation of addresses and interrupts
 Describe the principles and operation of volatile and non-volatile memory
 Describe the principles and operation of advanced memory techniques
 Define individual system blocks
 Draw systems configuration in block detail
 Interpret computer acronyms
 Describe priorities and interrupts at systems level
 Identify direct memory access data handling system(s)
 Define functions of advanced memory techniques (e.g., virtual, pipeline, cache)
 Describe how commands handle tasks in operating systems
 Describe various input/output systems
 Describe the purpose of operating system utilities
 Differentiate between a compiler and an interpreter
 Describe the processing that occurs when an interpreter is used
 Describe the processing that occurs when a compiler is used

Competency: Describe operation of chips and boards

Competency Builders:

Describe chip configuration and structure
 Describe operation of memory boards, including chip sizes
 Describe operation of mother boards
 Describe operation of compressor boards (e.g., math, graphics, FAX, modems, voice)
 Describe operation of controller cards
 Describe operation of network interface cards
 Describe operation of PCMCIA

Competency: Describe operation of connectivity devices

Competency Builders:

Describe operation of baluns
 Describe operation of multiplexers, MODEMS, CODECS, DSU
 Describe operation of switches, gateways, bridges, routers, brouters, and repeaters
 Describe operation of test equipment (e.g., protocol analyzers)

Competency: Explain operation of microprocessor systems**Competency Builders:**

Describe essential components of microprocessor and their functions
Describe principles and operation of BUS concepts (e.g., VESA, EISA)
Describe principles and operation of types of memory circuits
Identify operating systems (e.g., DOS, OS/2, UNIX) and their attributes
Describe microprocessor instructions sets
Describe principles and operation of microprocessor machine code
Demonstrate use of microprocessor machine code
Decode microprocessor machine code
Identify types of input and output devices and peripherals
Describe principles and operation of storage devices
Interface input and output ports to peripherals
Identify central processing unit building blocks and their uses
Identify levels of computer languages

Competency: Troubleshoot a microcomputer system**Competency Builders:**

Draw system configuration in block detail
Identify priorities and interrupts at system level
Operate computer system architecture
Repair computer system architecture
Demonstrate use of volatile and non-volatile memory
Repair or replace volatile and non-volatile memory

Competency: Install computer system (i.e., monitor, keyboard, disk drive, and printer)**Competency Builders:**

Configure system
Verify system
Print copy of root directory to printer
Document system installation

Competency: Explain operation of peripheral equipment

Competency Builders:

Identify types of card and paper-tape equipment and interface controllers

Define printer types and interface controllers

Explain the operation of typical magnetic tape equipment and interface controllers

Describe disk equipment and interface controllers

Define environmental requirements for peripherals and media

Competency: Repair peripheral equipment

Competency Builders:

Troubleshoot and repair disk equipment and interface controllers

Troubleshoot and repair display terminals and interface controllers, including touch screens

Troubleshoot and repair printers and interface controllers, including laser printers

Troubleshoot and repair mouse

Troubleshoot and repair bar code scanner

Troubleshoot and repair CD-ROM

Competency: Explain communication interfacing

Competency Builders:

Identify EIA, IEEE and CCITT standards

Differentiate sync and async devices

Define networking levels or layers

Define protocols

Define packet switching

Define multi-user systems

Unit: Microcomputer Electronics**Competency: Demonstrate proficiency in microprocessors****Competency Builders:**

Describe essential components of microprocessor and their functions using a block diagram
Describe principles and operation of types of memory circuits
Describe microprocessor instructions set
Decode microprocessor machine code
Identify types of input and output devices and peripherals
Describe principles and operation of storage devices
Operate oscilloscopes and logic/data analyzers
Demonstrate ability to interface peripherals
Identify central processing units

Competency: Demonstrate proficiency in electronic blueprint reading**Competency Builders:**

Interpret basic electronic/electronic standards and symbols
Interpret schematic drawing
Interpret cable drawings
Interpret component drawings
Interpret logic diagrams
Interpret connection drawings
Interpret interconnection drawings
Interpret printed circuit board drawings
Interpret harness drawings
Interpret package drawings
Interpret mechanical/electronic production blueprints and assembly drawings

Competency: Demonstrate proficiency in direct current (DC) circuits

Competency Builders:

Define voltage, current, resistance, Ohm's Law, power and energy
Solve problems in electrical units utilizing metric prefixes
Solve algebraic problems to include exponential equations
Measure properties of a circuit using volt-ohm meter (VOM) and digital volt-ohm meter (DVM)
Analyze series circuits using KVL
Analyze parallel circuits using KCL
Analyze series-parallel and bridge circuits
Describe voltage divider circuits (loaded and unloaded)
Analyze DC circuits that demonstrate the maximum power transfer theory
Apply Ohm's law
Apply Watt's law
Apply Kirchoff's current and voltage laws
Interpret color codes and symbols to identify electrical components and values
Measure properties of a circuit using analog and digital meters
Measure conductance and resistance of conductors and insulators
Describe magnetic properties of circuits and devices
Describe the physical and electrical characteristics of capacitors and inductors
Demonstrate troubleshooting techniques for DC circuits

Competency: Demonstrate proficiency in alternating current (AC) circuits

Competency Builders:

Analyze properties of an AC signal
Analyze AC signals utilizing VOM, DVM, oscilloscope, frequency counter and function generator
Analyze power in AC circuits
Set up capacitor and inductor analyzers for AC circuits
Use meter to measure value of capacitors and inductors
Identify AC sources
Describe the characteristics of sinusoidal and non-sinusoidal wave forms
Describe the principles and characteristics of capacitive circuits
Demonstrate the operation inductive circuits
Describe the principles and characteristics of transformers
Demonstrate the operation of AC circuits utilizing transformers
Analyze differentiators and integrators to determine RC and RL time constants
Describe characteristics of RLC circuits (series, parallel, and complex)
Describe the characteristics of series and parallel resonant circuits
Analyze series and parallel resonant circuits
Describe the principles and characteristics of frequency selective filter circuits
Demonstrate the operation of frequency selective filter circuits
Describe isolation transformers and surge suppressers
Demonstrate troubleshooting techniques for AC circuits

Competency: Demonstrate proficiency in discrete solid-state devices

Competency Builder:

Describe properties of semiconductor materials
Describe operating characteristics and applications of PN junctions
Demonstrate operation of diode circuits
Troubleshoot and repair diode circuits
Describe operating characteristic and applications of bipolar transistors
Describe operating characteristics and applications of field effect transistors
Describe operating characteristics and applications of special diodes/transistors
Describe operating characteristics and applications of opt-electronic devices
Describe operating characteristics and applications of single-stage amplifiers
Repair and troubleshoot single-stage amplifiers
Demonstrate the operation of thyristor circuitry (e.g., SCR, TRIAC, DIAC)
Troubleshoot and repair thyristor circuitry
Operate analog and digital test equipment for testing solid-state devices
Demonstrate use of an oscilloscope for solid-state circuits
Demonstrate use of function generator for solid-state circuits
Demonstrate use of transistor testers
Describe the operating characteristics and applications of regulated and switching power supply circuits
Demonstrate the operation of regulated power supply circuits
Troubleshoot and repair regulated and switching power supply circuits

Competency: Demonstrate proficiency in digital circuits

Competency Builders:

Describe characteristics of integrated circuit logic families
Describe the principle operation of logic gates
Describe various types of numbering systems
Demonstrate the use of logic gates
Describe the principles and operation of combinational logic circuits
Troubleshoot combinational logic circuits
Describe various types of flip-flops
Demonstrate use of flip-flops
Describe various clock and timing circuits
Demonstrate use of clock and timing circuits
Describe various types of encoders and decoders
Demonstrate use of various types of encoders and decoders
Describe various type so multiflexer and demultiplexer circuits
Demonstrate use of multiflexer and demultiplexer circuits
Describe the principles and operation of digital-to-analog analog-to-digital circuits
Operate a logic probe and pulsers for digital circuits
Troubleshoot and repair digital circuits

Competency: Apply troubleshooting techniques to a microcomputer system

Competency Builders:

Isolate faults in systems boards
Isolate faults in memory circuits
Isolate faults in data storage devices
Isolate faults in power supplies
Debug microprocessor machine code
Troubleshoot I/O ports
Isolate faults in I/O interface circuitry
Troubleshoot a microcomputer system
Use diagnostic software
Troubleshoot peripheral devices such as printer, modem, monitor, keyboard, disk drive, hard drive, mouse, tape back-up
Maintain troubleshooting and repair records
Interpret prints (e.g., PID, loopsheets)

Unit: Small Business Management

Competency: Explain entrepreneurship

Competency Builders:

- Identify characteristics of entrepreneurs
- Identify qualities and skills needed by business owners
- Identify means of obtaining technical assistance
- Identify advantages and disadvantages of owning a small business
- Identify personal risks of owning a small business
- Describe basic factors contributing to business success
- Describe a franchise-dealer relationship

Competency: Evaluate entrepreneurship as a personal goal

Competency Builders:

- Evaluate personal interests and resources (e.g., time, energy, skills)
- Compare personal interests and skills with those necessary for entrepreneurship
- Assess aptitude to become a successful entrepreneur
- Identify motives for becoming an entrepreneur

Competency: Develop a business plan

Competency Builders:

- List sources of information for starting a business
- Classify local and state requirements for starting business
- Identify risks of creating a new business
- Differentiate among market characteristics
- Analyze financing of business ownership
- Develop marketing strategies

Competency: Identify role of small business in the economy

Competency Builders:

- Identify factors that contribute to the success and failure of small business
- Describe effects of supply, demand, profit, and competition on small business
- Explain relationship of small business to a national (USA) and global economy

Competency: Analyze how legislation affects small business

Competency Builders:

Identify legal issues faced by entrepreneurs
Describe the relationship between government and entrepreneurs
Explain the effects of regulation on the business operation
Identify when and how to obtain appropriate legal assistance
Participate in the legislative process

Competency: Evaluate factors affecting small business management

Competency Builders:

Identify advantages and disadvantage of various types of ownership
Identify cooperative arrangements
Describe legal forms of retail businesses
Differentiate between various types of insurable business risks
Describe social and ethical problems that affect business
Classify types of government regulations that affect business
Analyze current trends in business
List costs that must be considered when starting a business
Select best location and layout for a business

Competency: Identify marketing mix

Competency Builders:

Explain importance of having the right product
Explain importance of having the product at the right place
Explain importance of having the product with the right promotion
Explain importance of having the product at the right price
Explain importance of having the product at the right time

Competency: Promote products and/or services**Competency Builders:**

Explain selling function
Explain promotion function
Describe relationship of sales to promotion
Describe how to plan for special events and public relations activities
Explain importance of maintaining a check on competitors' promotions
Identify factors used to select appropriate products
Prepare merchandise/buying plan
Maintain vendor information and select appropriate vendors
Identify selling price
Keep abreast of merchandising trends

Competency: Manage customer relations**Competency Builders:**

Identify advantages of customer services and accommodations
Identify advantages of attractive, comfortable facilities
Explain importance of price, quality, and variety
Use acceptable techniques in handling customer complaints

Competency: Minimize internal theft**Competency Builders:**

Establish internal theft policy
Identify types of internal loss
Identify potential loss situations
Report employee theft
Follow company policies regarding internal theft
Follow security procedures

Competency: Explain financing methodologies**Competency Builders:**

Explain leasing
Explain stock ownership
Explain bond ownership
Explain convertible securities
Explain bank loans

Competency: Identify costs of financial services**Competency Builders:**

- Classify revenue and expenses
- Speculate on revenue sources and expenses
- Identify start-up costs
- Explain means of obtaining financial assistance
- Explain importance of a sound credit rating
- Outline long-range financial plans
- Explain how sources of finance are used in business operations
- Compare financial services available from financial institutions

Competency: Prepare financial records and reports**Competency Builders:**

- Record receipts and payments
- Adjust cash flow upon the introduction of a variable
- Justify budget items
- Record income and expenditures
- Report employee records for audit and taxation purposes

Competency: Explain management's role in operating a business**Competency Builders:**

- Explain importance of organizational skills
- Identify management functions performed by entrepreneurs
- Describe responsibilities and rewards of small business management
- Compare specific management techniques
- Explain importance of time management
- Identify benefits of membership in professional/trade associations
- Identify professional support system(s)
- Explain need for basic accounting skills
- Identify free sources of information and support
- Explain importance of fundamental marketing skills
- Describe benefits of continuous employee training

Competency: Practice safety precautions**Competency Builders:**

- Maintain safe work area
- Operate equipment safely
- Practice safety to prevent accidents
- Follow procedures for reporting accidents
- Follow safety procedures for special populations
- Follow government regulations (e.g., OSHA, EPA)
- Follow sanitation and hygiene procedures
- Report emergencies to proper authorities
- Identify emergency evacuation plans
- Operate fire and safety equipment

Competency: Comply with government regulations**Competency Builders:**

- Identify sources of information and assistance
- Identify regulations, licensing, and permits affecting business operations
- Identify taxes affecting small businesses
- Develop policies of compliance
- Develop basic first aid skills
- Monitor changing regulations

Competency: Perform management activities**Competency Builders:**

Define management

Describe basic principles of good management

Identify effective leadership traits

Develop management objectives

Explain role of management in operating a business

Identify purposes of forecasting

Identify purpose of selecting appropriate marketing strategies

Develop short-term and long-term action plans

Describe importance of performance measurements and record keeping

Explain importance of keeping informed of developments and trends affecting business

Explain importance of planning for emergencies

Prepare managerial reports about production, personnel, equipment, and operational costs

Identify elements of a general budget

Describe use of credit by a business

Identify accounting statements that provide business information

Develop short/long range plans including Equal Access/Equal Opportunity (EAEQ) guidelines

Develop procedures for handling employee complaints

Evaluate job applicants

Recommend employees for promotion

Identify contract laws

Describe the effects of insurance

Describe risk management alternatives (e.g., fire, theft, liability)

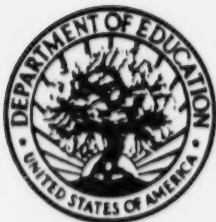
Describe consumer credit plans

Describe procedures for collection of accounts

Explain inventory control systems

Explain need for an equipment maintenance plan

Explain need for a facility maintenance plan



U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement (OERI)
Educational Resources Information Center (ERIC)



REPRODUCTION RELEASE

(Blanket)

I. DOCUMENT IDENTIFICATION (Class of Documents):

All Publications <i>Business Technology Cluster</i>
Series (Identify Series)
Division/Department Publications (Specify)

II. REPRODUCTION RELEASE:

In order to disseminate as widely as possible timely and significant materials of interest to the educational community, documents announced in the monthly abstract journal of the ERIC system, *Resources in Education* (RIE), are usually made available to users in microfiche, reproduced paper copy, and electronic/optical media, and sold through the ERIC Document Reproduction Service (EDRS) or other ERIC vendors. Credit is given to the source of each document, and, if reproduction release is granted, one of the following notices is affixed to the document.

If permission is granted to reproduce the identified document, please CHECK ONE of the following options and sign the release below.



Sample sticker to be affixed to document

Sample sticker to be affixed to document



Check here

Permitting
microfiche
(4" x 6" film),
paper copy,
electronic,
and optical media
reproduction

"PERMISSION TO REPRODUCE THIS
MATERIAL HAS BEEN GRANTED BY

Sample

TO THE EDUCATIONAL RESOURCES
INFORMATION CENTER (ERIC)."

Level 1

"PERMISSION TO REPRODUCE THIS
MATERIAL IN OTHER THAN PAPER
COPY HAS BEEN GRANTED BY

Sample

TO THE EDUCATIONAL RESOURCES
INFORMATION CENTER (ERIC)."

Level 2

or here

Permitting
reproduction
in other than
paper copy.

Sign Here, Please

Documents will be processed as indicated provided reproduction quality permits. If permission to reproduce is granted, but neither box is checked, documents will be processed at Level 1.

"I hereby grant to the Educational Resources Information Center (ERIC) nonexclusive permission to reproduce these documents as indicated above. Reproduction from the ERIC microfiche or electronic/optical media by persons other than ERIC employees and its system contractors requires permission from the copyright holder. Exception is made for non-profit reproduction by libraries and other service agencies to satisfy information needs of educators in response to discrete inquiries."	
Signature: <i>[Signature]</i>	Position: Deputy Director
Printed Name: Chester Hansen	Organization: Center on Education & Training for Employment
Address: CETE The Ohio State University 1900 Kenny Rd, Col., OH 43210	Telephone Number: (614) 292-4353 800-848-4015
	Date: 11/25/95

OVER



U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement (OERI)
Educational Resources Information Center (ERIC)



NOTICE

REPRODUCTION BASIS

☒

This document is covered by a signed "Reproduction Release (Blanket)" form (on file within the ERIC system), encompassing all or classes of documents from its source organization and, therefore, does not require a "Specific Document" Release form.

☐

This document is Federally-funded, or carries its own permission to reproduce, or is otherwise in the public domain and, therefore, may be reproduced by ERIC without a signed Reproduction Release form (either "Specific Document" or "Blanket").

